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Emergency Department Provider Satisfaction with EMS Turnover Reports in Critical Trauma Patients



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Abstract: Trauma represents a leading cause of overall patient morbidity and mortality in the Emergency Department. Handoffs between teams are a vital component of patient care which require both efficiency and completeness. To better understand handoffs both in terms of information provided and recipient satisfaction, this study was conducted in hopes that it might guide future, standardized handoff frameworks. Content of handoffs and satisfaction of recipient parties was assessed via research assistants present during handoff of trauma patients. Satisfaction was related to content of handoffs, particularly, certain medical factors. However, specific factors of importance differed between different ED Team members. This may indicate the need for handoffs to be tailored in terms of emphasis and content to recipient parties for maximum communication efficacy

Introduction: Trauma accounts for 23% of all emergency department (ED) visits and is a leading cause of morbidity and mortality.^{1,2} Many critical trauma patients arrive to the ED by emergency medical services (EMS). EMS-ED handoff quality affects patient safety and quality of care.³⁻⁶ However, there is a scarcity of literature examining trauma patient handoffs and hospital staff satisfaction. The goal of this study was to investigate the relationship of specific information given during EMS handoffs with hospital staff satisfaction.

Methods: This study observed handoffs of patients sustaining major trauma at the University of New Mexico (UNM) Hospital, the state's only level I trauma center. UNM Hospital has a trauma alert protocol (TAP) to notify emergency medicine and surgery teams of incoming patients; these patients are assessed, stabilized, and treated by these teams. Data were collected from January 1, 2017 to December 31, 2017. This study included handoffs for TAP patients who were brought in by EMS. ED research assistants directly observed handoffs and recorded information using electronic data capture. Data points included vital signs (blood pressure, pulse, blood glucose, and mental status) and medical factors (allergies, IV access, injury mechanism, medications given by EMS, and home medications). Subjective factors included numerical satisfaction scores of EMS and various hospital providers for the handoff and the initial treatment/resuscitation after the handoff (both used 10-point Likert scales).^{7,8,9} Stata™ 14 was used for all analyses, with significance determined using t-tests and a type 1 error rate of 0.05.

Supported	Not Supported
<ul style="list-style-type: none"> ED physician satisfaction will be associated with EMS – ED provider hand-off completeness as measured by the number of predetermined, high-value additional medical factors reported. Supported in part. Is there a relationship between handoff satisfaction and resuscitation satisfaction? Yes, but only for physicians 	<ul style="list-style-type: none"> ED physician satisfaction will be associated with EMS – ED provider hand-off completeness as measured by the number of predetermined, high-value vital signs reported. Not supported. Patient severity, as measured by first HR and first BP (shock index), will be associated with ED physician satisfaction. Not supported.

Results: We observed 180 handoffs and recorded satisfaction scores for 142 ED physicians, 53 surgeons, 68 nurses, and 163 EMS providers. Median satisfaction scores and interquartile ranges were: ED physicians 8 (8-9), surgeons 8 (7-9), nurses 9 (7-10), and EMS providers 9 (8-10). Provider satisfaction was unrelated to the number of vital signs reported, or to whether any individual vital sign was reported. Conversely, most medical factors were related to satisfaction by at least one type of provider (Table 1). The total number of medical factors reported was associated with satisfaction among ED physicians and nurses. Among physicians, handoff satisfaction and satisfaction with the resuscitation were associated.

Table 1. The relationship between information reported during EMS-ED handoffs and provider satisfaction

Medical factors reported	handoff satisfaction p-value			
	ED Physician	Surgeon	Nurse	EMS
Allergies	0.027	NS	NS	NS
IV access	NS	NS	0.022	NS
Injury mechanism	NS	NS	0.0065	NS
EMS meds	NS	0.0061	NS	0.0068
Home meds	NS	NS	NS	NS
Sum of medical factors	0.026	NS	0.001	NS
Other				
Resuscitation Satisfaction	0.0001	0.017	NS	NS

Discussion: Handoffs between teams continue to be a very important target when attempting to improve overall patient morbidity and mortality in an emergency setting. Particularly, handoffs between Emergency Medical Services (EMS) and Emergency Department (ED) teams provide a very important transition which institutions can target to improve overall efficiency of encounters and outcomes for patients. Our study demonstrates key factors to consider when building a framework for efficient handoffs. To begin, our study demonstrates that emphasis of individual pertinent medical factors may need to be tailored based on audience. While emergency department physicians were most concerned with the sum of all medical factors presented, surgeons tended to prioritize information concerning medications/interventions administered by EMS. Nurses, preferred handoffs with information regarding IV access and mechanism of injury. While a successful EMS presentation will ideally include all these points of data, directing certain points of information towards specific team members or emphasizing their importance based on a receiving member's role may improve communication in highly stressful situations. A limitation of this study is the use of ED provider satisfaction as a proxy for handoff quality. Of note, ED physician satisfaction was associated with resuscitation satisfaction. This may indicate that using satisfaction as a proxy for handoff quality is confounded by patient outcome. In development of future studies researchers may wish to develop different proxies to compare against satisfaction in assessment of handoff quality. Also, a large majority of factors presented in EMS handoffs were not significant in overall satisfaction measures. Included in this group were all data on vital signs. This suggests need for further research that includes initial ED assessment to highlight redundancies between EMS handoffs and standard initial workup. This may allow EMS teams to prioritize other information that will not immediately be assessed regardless on ED workup.

Resources

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